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The

Communicator

A Publication Of The Surrey Amateur Radio Club



October
2018

 **SARC**

October 2018



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The **Communicator** is a publication of the Surrey Amateur Radio Club. It appears monthly, except July and August, for area Amateur Radio operators, to enhance the exchange of information and to promote local ham radio activity.

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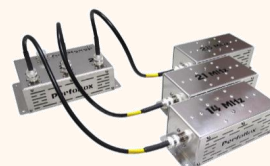
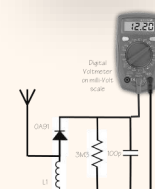
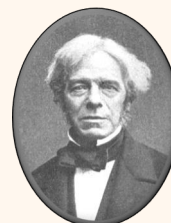
Regular readers who are not SARC members are invited to contribute a \$5 annual [donation](#) towards our Field Day fund.

SARC maintains a website at www.ve7sar.net and a Digital Communicator at ve7sar.blogspot.ca that includes recent news, past issues of The Communicator, club history, photos, videos and other information.

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On The October Cover...

Probably our best photo of June 2018 Field Day operations, here we have John Brodie VA7XB very early on Sunday morning working CW. The availability of CW operators was excellent this year and that is important as a CW contact counts for double the points of a phone (voice) contact.



QRM

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...from the Editor's Shack

*Do you have a photo or bit of club news to share?
An Interesting link?*

*Something to sell or something you are looking for?
eMail it to [communicator @ ve7sar.net](mailto:communicator@ve7sar.net) for inclusion in this publication.*

First of all, my excuses. By the time you read through this edition of The Communicator, you will notice that it is smaller than usual. The reason for this is that we are currently travelling and without a computer, my smart phone is with me but unfortunately it's not smart enough to produce this publication. We will catch up in November.

We started the latest Basic Amateur Radio course on Tuesday, September 11th. The students are folks from all walks of life, each with a purpose for becoming involved. A common thread is off-roading and emergency preparedness, which is good but we hope that some will also embrace other facets of this fabulous and diverse hobby.

I am looking for someone familiar enough with Digital Mobile Radio (DMR), which is a relatively new open digital mobile radio standard defined in the European Telecommunications Standards Institute (ETSI) and used in commercial products, and now Amateur Radio around the world. DMR, along with P25 phase II and NXDN are the main competing technologies. The standard has recently become popular within the amateur radio community due to worldwide coverage, the relative lower cost and

complexity compared to other commercial digital modes. The primary goal of the standard is to specify a digital system with low complexity, low cost and interoperability across brands, so radio communications purchasers are not locked into a proprietary solution.

If you are familiar enough with DMR as it applies to Amateur Radio and would be willing to prepare a piece, we'd love to feature your article in The Communicator.

Our Blog site (ve7sar.blogspot.ca) has been operational in excess of one year. We have had thousands of worldwide visitors over that time and that rate is climbing monthly, in fact, the September Communicator was downloaded well over 1,000 times. There is a lot of interest in our technical articles and past issues of this publication.

I am slowly making progress on an index of Communicator articles from the time I took over as Editor. This index will make it much simpler to consult a past issue for a specific topic.

In the meantime, enjoy this issue.

~ John VE7TI

On the Web

ve7sar.net

Between newsletters, watch your e-mail for news, announcements of Amateur Radio events, monthly meetings and training opportunities.

Click the links below to follow our presence on the web:

SARC Blog

ve7sar.blogspot.ca

Twitter

[@ve7sar](https://twitter.com/ve7sar)

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Our YouTube Channel

[SurreyARC](https://www.youtube.com/SurreyARC)

SARC Photo Albums

[Web Albums](http://WebAlbums)

or

tinyurl.com/SARCphoto

Life is 10% what happens to you and 90% how you react to it.—Charles R. Swindoll

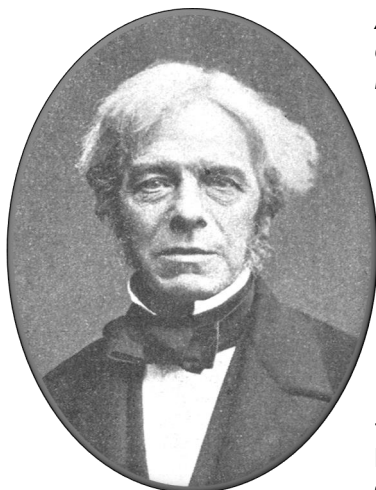
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The Rest Of The Story...

Michael Faraday

A Man With An 'Electro-Magnetic' Personality



Michael Faraday (22 September 1791 - 25 August 1867) was a British scientist who contributed to the study of electro-magnetism and electrochemistry. His main discoveries include the principles underlying electromagnetic induction, diamagnetism and electrolysis.

Although Faraday received little formal education, he was one of the most influential scientists in history. It was by his research on the magnetic field around a conductor carrying a direct current that Faraday established the basis for the concept of the electromagnetic field in physics. Faraday also established that magnetism could affect rays of light and that there was an underlying relationship between the two phenomena. He similarly discovered the principles of electromagnetic induction and diamagnetism, and the laws of electrolysis. His inventions of electromagnetic rotary devices formed the foundation of electric motor technology, and it was largely due to his efforts that electricity became practical for use in technology.

As a chemist, Faraday discovered benzene, investigated the clathrate hydrate of chlorine, invented an early form of the Bunsen burner and the system of oxidation numbers, and popularized terminology such as "anode", "cathode", "electrode" and "ion". Faraday ultimately became the first and foremost Fullerian Professor of Chemistry at the Royal Institution, a lifetime position.

Faraday was an excellent experimentalist who conveyed his ideas in clear and

simple language; his mathematical abilities, however, did not extend as far as trigonometry and were limited to the simplest algebra. James Clerk Maxwell took the work of Faraday and others and summarized it in a set of equations which is accepted as the basis of all modern theories of electromagnetic phenomena. On Faraday's uses of lines of force, Maxwell wrote that they show Faraday "to have been in reality a mathematician of a very high order - one from whom the mathematicians of the future may derive valuable and fertile methods." The SI unit of capacitance is named in his honour: the farad.

Albert Einstein kept a picture of Faraday on his study wall, alongside pictures of Isaac Newton and James Clerk Maxwell. Physicist Ernest Rutherford stated, "When we consider the magnitude and extent of his discoveries and their influence on the progress of science and of industry, there is no honour too great to pay to the memory of Faraday, one of the greatest scientific discoverers of all time."

Early life

Michael Faraday was born in Newington Butts, which is now part of the London Borough of Southwark but was then a suburban part of Surrey. His family was not well off. His father, James, was a member of the Glassite sect of Christianity. James Faraday moved his wife and two children to London during the winter of 1790 from Outhgill in Westmorland, where he had been an apprentice to the village blacksmith. Michael was born in the autumn of that

year. The young Michael Faraday, who was the third of four children, having only the most basic school education, had to educate himself.

At the age of 14 he became an apprentice to George Riebau, a local bookbinder and bookseller in Blandford Street. During his seven-year apprenticeship Faraday read many books, including Isaac Watts's *The Improvement of the Mind*, and he enthusiastically implemented the principles and suggestions contained therein. He also developed an interest in science, especially in electricity. Faraday was particularly inspired by the book *Conversations on Chemistry* by Jane Marcet.

Adult life

In 1812, at the age of 20 and at the end of his apprenticeship, Faraday attended lectures by the eminent English chemist Humphry Davy of the Royal Institution and the Royal Society, and John Tatum, founder of the City Philosophical Society. Many of the tickets for these lectures were given to Faraday by William Dance, who was one of the founders of the Royal Philharmonic Society. Faraday subsequently sent Davy a 300-page book based on notes that he had taken during these lectures. Davy's reply was immediate, kind, and favourable. In 1813, when Davy damaged his eyesight in an accident with nitrogen trichloride, he decided to employ Faraday as an assistant. Coincidentally one of the Royal Institution's assistants, John Payne, was sacked and Sir Humphry Davy had been asked to find a replacement; thus he appointed Faraday as Chemical Assistant at the Royal Institution on 1 March 1813. Very soon Davy entrusted Faraday with the preparation of nitrogen trichloride samples, and they both were injured in an explosion of this very sensitive substance.

In the class-based English society of the time, Faraday was not considered a gentleman. When Davy set out on a long tour of the continent in 1813-15, his valet did not wish to go, so instead, Faraday went as Davy's scientific assistant and was asked to act as Davy's valet until a replacement could be found in Paris. Faraday was forced to fill the role of valet as well as assistant throughout the trip. Davy's wife, Jane Apreece, refused to treat Faraday as an equal (making him travel outside the coach, eat with the servants, etc.), and made Faraday so miserable that he contemplated returning to

England alone and giving up science altogether. The trip did, however, give him access to the scientific elite of Europe and exposed him to a host of stimulating ideas.

Faraday married Sarah Barnard (1800-1879) on 12 June 1821. They met through their families at the Sandemanian church, and he confessed his faith to the Sandemanian congregation the month after they were married. They had no children. Faraday was a devout Christian; his Sandemanian denomination was an offshoot of the Church of Scotland. Well after his marriage, he served as deacon and for two terms as an elder in the meeting house of his youth. His church was located at Paul's Alley in the Barbican. This meeting house relocated in 1862 to Barnsbury Grove, Islington; this North London location was where Faraday served the final two years of his second term as elder prior to his resignation from that post. Biographers have noted that "a strong sense of the unity of God and nature pervaded Faraday's life and work."

Later life

In June 1832, the University of Oxford granted Faraday a Doctor of Civil Law degree (honorary). During his lifetime, he was offered a knighthood in recognition for his services to science, which he turned down on religious grounds, believing that it was against the word of the Bible to accumulate riches and pursue worldly reward, and stating that he preferred to remain "plain Mr Faraday to the end". Elected a member of the Royal Society in 1824, he twice refused to become President. He became the first Fullerian Professor of Chemistry at the Royal Institution in 1833.

In 1832, Faraday was elected a Foreign Honorary Member of the American Academy of Arts and Sciences. He was elected a foreign member of the Royal Swedish Academy of Sciences in 1838, and was one of eight foreign members elected to the French Academy of Sciences in 1844. In 1849 he was elected as associated member to the Royal Institute of the Netherlands, which two years later became the Royal Netherlands Academy of Arts and Sciences and he was subsequently made foreign member.

Faraday suffered a nervous breakdown in 1839 but eventually returned to his investigations into electromagnetism. In 1848, as a result of representations by the Prince Consort, Faraday

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was awarded a grace and favour house in Hampton Court in Middlesex, free of all expenses and upkeep. This was the Master Mason's House, later called Faraday House, and now No. 37 Hampton Court Road. In 1858 Faraday retired to live there.

Having provided a number of various service projects for the British government, when asked by the government to advise on the production of chemical weapons for use in the Crimean War (1853-1856), Faraday refused to participate citing ethical reasons.

Faraday died at his house at Hampton Court on 25 August 1867, aged 75. He had some years before turned down an offer of burial in Westminster Abbey upon his death, but he has a memorial plaque there, near Isaac Newton's tomb. Faraday was interred in the dissenters' (non-Anglican) section of Highgate Cemetery.

Scientific achievements

Chemistry

Faraday's earliest chemical work was as an assistant to Humphry Davy. Faraday was specifically involved in the study of chlorine; he discovered two new compounds of chlorine and carbon. He also conducted the first rough experiments on the diffusion of gases, a phenomenon that was first pointed out by John Dalton. The physical importance of this phenomenon was more fully revealed by Thomas Graham and Joseph Loschmidt. Faraday succeeded in liquefying several gases, investigated the alloys of steel, and produced several new kinds of glass intended for optical purposes. A specimen of one of these heavy

glasses subsequently became historically important; when the glass was

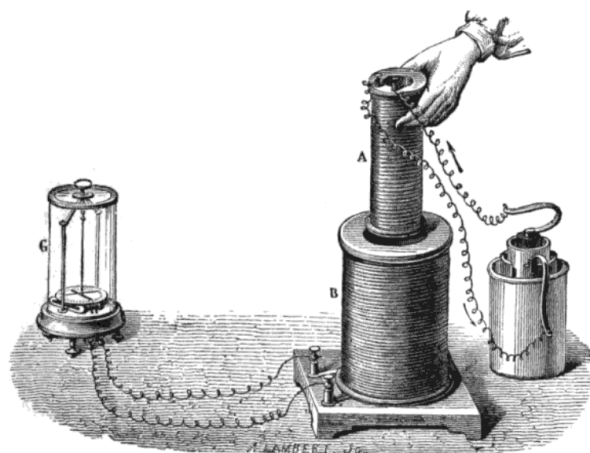
placed in a magnetic field Faraday determined the rotation of the plane of polarization of light. This specimen was also the first substance found to be repelled by the poles of a magnet.

Faraday invented an early form of what was to become the Bunsen burner, which is in practical use in science laboratories around the world as a convenient source of heat. Faraday worked extensively in the field of chemistry, discovering chemical substances such as benzene (which he called bicarburet of hydrogen) and liquefying gases such as chlorine. The liquefying of gases helped to establish that gases are the vapours of liquids possessing a very low boiling point and gave a more solid basis to the concept of molecular aggregation. In 1820 Faraday reported the first synthesis of compounds made from carbon and chlorine, and published his results the following year. Faraday also determined the composition of the chlorine clathrate hydrate, which had been discovered by Humphry Davy in 1810. Faraday is also responsible for discovering the laws of electrolysis, and for popularizing terminology such as anode, cathode, electrode, and ion, terms proposed in large part by William Whewell.

Faraday was the first to report what later came to be called metallic nanoparticles. In 1847 he discovered that the optical properties of gold colloids differed from those of the corresponding bulk metal. This was probably the first reported observation of the effects of quantum size, and might be considered to be the birth of nanoscience.

Electricity and magnetism

Faraday is best known for his work regarding electricity and magnetism. His first recorded experiment was the construction of a voltaic pile with seven ha'penny coins, stacked together with seven disks of sheet zinc, and six pieces of paper moistened with salt water.



One of Faraday's 1831 experiments demonstrating induction. The liquid battery (right) sends an electric current through the small coil (A). When it is moved in or out of the large coil (B), its magnetic field induces a momentary voltage in the coil, which is detected by the galvanometer (G).

With this pile he decomposed sulfate of magnesia (*first letter to Abbott, 12 July 1812*).

In 1821, soon after the Danish physicist and chemist Hans Christian Ørsted discovered the phenomenon of electromagnetism, Davy and British scientist William Hyde Wollaston tried, but failed, to design an electric motor. Faraday, having discussed the problem with the two men, went on to build two devices to produce what he called "electromagnetic rotation". One of these, now known as the homopolar motor, caused a continuous circular motion that was engendered by the circular magnetic force around a wire that extended into a pool of mercury wherein was placed a magnet; the wire would then rotate around the magnet if supplied with current from a chemical battery. These experiments and inventions formed the foundation of modern electromagnetic technology. In his excitement, Faraday published results without acknowledging his work with either Wollaston or Davy. The resulting controversy within the Royal Society strained his mentor relationship with Davy and may well have contributed to Faraday's assignment to other activities, which consequently prevented his involvement in electromagnetic research for several years.

From his initial discovery in 1821, Faraday continued his laboratory work, exploring electromagnetic properties of materials and developing requisite experience. In 1824, Faraday briefly set up a circuit to study whether a magnetic field could regulate the flow of a current in an adjacent wire, but he found no such relationship. This experiment followed similar work conducted with light and magnets three years earlier that yielded identical results. During the next seven years, Faraday spent much of his time perfecting his recipe for optical quality (heavy) glass, borosilicate of lead, which he used in his future studies connecting light with magnetism. In his spare time, Faraday continued publishing his experimental work on optics and electromagnetism; he conducted correspondence with scientists whom he had met on his journeys across Europe with Davy, and who were also working on electromagnetism. Two years after the death of Davy, in 1831, he began his great series of experiments in which he discovered electromagnetic induction, recording in his laboratory diary on 28 October 1831 he was; "making many experiments with the great magnet of the Royal Society".

Faraday's breakthrough came when he wrapped two insulated coils of wire around an iron ring, and found that upon passing a current through one coil a momentary current was induced in the other coil. This

phenomenon is now known as mutual induction. The iron ring-coil apparatus is still on display at the Royal Institution. In subsequent experiments, he found that if he moved a magnet through a loop of wire an electric current flowed in that wire. The current also flowed if the loop was moved over a stationary magnet. His demonstrations established that a changing magnetic field produces an electric field; this relation was modelled mathematically by James Clerk Maxwell as Faraday's law, which subsequently became one of the four Maxwell equations, and which have in turn evolved into the generalization known today as field theory. Faraday would later use the principles he had discovered to construct the electric dynamo, the ancestor of modern power generators and the electric motor.

In 1832, he completed a series of experiments aimed at investigating the fundamental nature of electricity; Faraday used "static", batteries, and "animal electricity" to produce the phenomena of electrostatic attraction, electrolysis, magnetism, etc. He concluded that, contrary to the scientific opinion of the time, the divisions between the various "kinds" of electricity were illusory. Faraday instead proposed that only a single "electricity" exists, and the changing values of quantity and intensity (current and voltage) would produce different groups of phenomena.

Near the end of his career, Faraday proposed that electromagnetic forces extended into the empty space around the conductor. This idea was rejected by his fellow scientists, and Faraday did not live to see the eventual acceptance of his proposition by the scientific community. Faraday's concept of lines of flux emanating from charged bodies and magnets provided a way to visualize electric and magnetic fields; that conceptual model was crucial for the successful development of the electromechanical devices that dominated engineering and industry for the remainder of the 19th century.

Diamagnetism

In 1845, Faraday discovered that many materials exhibit a weak repulsion from a magnetic field: a phenomenon he termed diamagnetism.

Faraday also discovered that the plane of polarization of linearly polarized light can be rotated by the application of an external magnetic field aligned with the direction in which the light is moving. This is now termed the Faraday effect. In Sept 1845 he wrote in his notebook, "I have at last succeeded in illuminating a magnetic curve or line of force and in magnetizing a ray of light".

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Later on in his life, in 1862, Faraday used a spectroscope to search for a different alteration of light, the change of spectral lines by an applied magnetic field. The equipment available to him was, however, insufficient for a definite determination of spectral change. Pieter Zeeman later used an improved apparatus to study the same phenomenon, publishing his results in 1897 and receiving the 1902 Nobel Prize in Physics for his success. In both his 1897 paper and his Nobel acceptance speech, Zeeman made reference to Faraday's work.

Faraday cage

In his work on static electricity, Faraday's ice pail experiment demonstrated that the charge resided only on the exterior of a charged conductor, and exterior charge had no influence on anything enclosed within a conductor. This is because the exterior charges redistribute such that the interior fields emanating from them cancel one another. This shielding effect is used in what is now known as a Faraday cage.

Royal Institution and public service

Faraday had a long association with the Royal Institution of Great Britain. He was appointed Assistant Superintendent of the House of the Royal Institution in 1821. He was elected a member of the Royal Society in 1824. In 1825, he became Director of the Laboratory of the Royal Institution. Six years later, in 1833, Faraday became the first Fullerian Professor of Chemistry at the Royal Institution of Great Britain, a position to which he was appointed for life without the obligation to deliver lectures. His sponsor and mentor was John 'Mad Jack' Fuller, who created the position at the Royal Institution for Faraday.

Beyond his scientific research into areas such as chemistry, electricity, and magnetism at the Royal Institution, Faraday undertook numerous, and often time-consuming, service projects for private enterprise and the British government. This work

included investigations of explosions in coal mines, being an expert witness in court, and along with two engineers from Chance Brothers c.1853, the preparation of high-quality optical glass, which was required by Chance for its lighthouses. In 1846, together with Charles Lyell, he produced a lengthy and detailed report on a serious explosion in the colliery at Haswell, County Durham, which killed 95 miners. Their report was a meticulous forensic investigation and indicated that coal dust contributed to the severity of the explosion. The report should have warned coal owners of the hazard of coal dust explosions, but the risk was ignored for over 60 years until the Senghenydd Colliery Disaster of 1913.

As a respected scientist in a nation with strong maritime interests, Faraday spent extensive amounts of time on projects such as the construction and operation of lighthouses and protecting the bottoms of ships from corrosion. His workshop still stands at Trinity Buoy Wharf above the Chain and Buoy Store, next to London's only lighthouse where he carried out the first experiments in electric lighting for lighthouses.

Faraday was also active in what would now be called environmental science, or engineering. He investigated industrial pollution at Swansea and was consulted on air pollution at the Royal Mint. In July 1855, Faraday wrote a letter to The Times on the subject of the foul condition of the River Thames, which resulted in an often-reprinted cartoon in *Punch* (*graphic left*).

Faraday assisted with the planning and judging of exhibits for the Great Exhibition of 1851 in London. He also advised the National Gallery on the cleaning and protection of its art collection, and served on the National Gallery Site Commission in 1857.

Education was another of Faraday's areas of service; he lectured on the topic in 1854 at the Royal Institution, and in 1862 he appeared before a Public Schools Commission to give his views on education in Great Britain. Faraday also weighed in negatively on the public's fascination with table-turning, mesmerism, and seances, and in so doing chastised both the public and the nation's educational system.

Before his famous Christmas lectures, Faraday delivered chemistry lectures for the City Philosophical Society from 1816 to 1818 in order



to refine the quality of his lectures. Between 1827 and 1860 at the Royal Institution in London, Faraday gave a series of nineteen Christmas lectures for young people, a series which continues today. The objective of Faraday's Christmas lectures was to present science to the general public in the hopes of inspiring them and generating revenue for the Royal Institution. They were notable events on the social calendar among London's gentry. Over the course of several letters to his close friend Benjamin Abbott, Faraday outlined his recommendations on the art of lecturing: Faraday wrote "a flame should be lighted at the commencement and kept alive with unremitting splendour to the end". His lectures were joyful and juvenile, he delighted in filling soap bubbles with various gasses (in order to determine whether or not they are magnetic) in front of his audiences and marveled at the rich colors of polarized lights, but the lectures were also deeply philosophical. In his lectures he urged his audiences to consider the

mechanics of his experiments: "you know very well that ice floats upon water ... Why does the ice float? Think of that, and philosophize". His subjects consisted of Chemistry and Electricity, and included: 1841 The Rudiments of Chemistry, 1843 First Principles of Electricity, 1848 The Chemical History of a Candle, 1851 Attractive Forces, 1853 Voltaic Electricity, 1854 The Chemistry of Combustion, 1855 The Distinctive Properties of the Common Metals, 1857 Static Electricity, 1858 The Metallic Properties, 1859 The Various Forces of Matter and their Relations to Each Other.

And that... is the rest of this story.

~

How to use an SWR meter

Electronics Notes has just launched a new page on "How to Use an SWR Meter." As there are many misconceptions and myths about SWR, they have tried to look at the topic and detail how to use an SWR meter and also how to interpret the results.

The page details what an SWR meter is, the various ways in which an SWR meter can be used, with and without an antenna tuner, and then it looks at interpreting the results. A step by step guide of making SWR measurements is also included.

Not always does a good SWR reading mean that everything is working well, and in this page with its associated video they try to provide a straightforward and informative explanation about using SWR meters and what to look for.



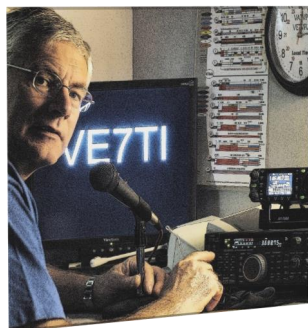
Read the full story at:

<https://www.electronics-notes.com/articles/antennas-propagation/vswr-return-loss/how-to-use-vswr-meter.php>

The video is at:

<https://www.youtube.com/watch?v=qSea5FjcTDE>

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Back to Basics

John Schouten VE7TI

From The Canadian Basic Question Bank

Power can be transferred between the two coils, without a metallic connection between the two circuits.



A typical transformer

This month we will examine transformers.

B-005-11-1 If no load is attached to the secondary winding of a transformer, what is current in the primary winding called?

1. Magnetizing current
2. Direct current
3. Excitation current
4. Stabilizing current

A transformer is a static electrical device that transfers electrical energy between two or more circuits through electromagnetic induction. A varying current in one coil of the transformer produces a varying magnetic field, which in turn induces a varying electromotive force (emf) or "voltage" in a second coil. Power can be transferred between the two coils, without a metallic connection between the two circuits. Faraday's law of induction discovered in 1831 described this effect (See story Page 4).

Transformers are used to increase or decrease the alternating voltages (AC) in electric power applications.

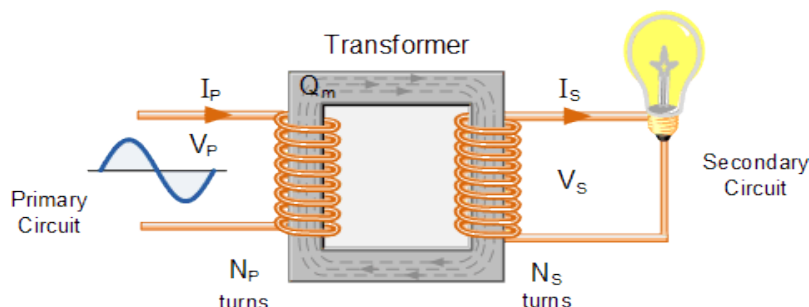
An ideal transformer is theoretical... lossless and perfectly coupled. There exists no lossless transformer though.

Transformer energy losses are dominated by winding and core losses. Magnetic permeability of the core results in the most loss, often felt as heat.

One of the main reasons that we use alternating AC voltages and currents in our homes and workplace's is that AC supplies can be easily generated at a convenient voltage, transformed (hence the name transformer) into much higher voltages and then distributed around the country using a national grid of pylons and cables over very long distances.

A varying current in the transformer's primary winding creates a varying magnetic flux in the transformer core and a varying magnetic field impinging on the secondary winding. This varying magnetic field at the secondary winding induces a varying EMF or voltage in the secondary winding due to electromagnetic induction. The primary and secondary windings are wrapped around a core of high magnetic permeability so that all of the magnetic flux passes through both the primary and secondary windings. With an AC voltage source connected to the primary winding and load connected to the secondary winding, the transformer currents flow in the direction indicated in the diagram below.

Yes, you too **can** pass the Basic exam!



According to Faraday's law, since the same magnetic flux passes through both the primary and secondary windings in an ideal transformer, a voltage is induced in each winding proportional to its number of windings. This is determined by the equation:

$$\frac{V_p}{V_s} = \frac{N_p}{N_s}$$

V_p - is the Primary Voltage

V_s - is the Secondary Voltage

N_p - is the Number of Primary Windings

N_s - is the Number of Secondary Windings

The ratio of the transformers primary and secondary windings with respect to each other produces either a step-up voltage transformer or a step-down voltage transformer with the ratio between the number of primary turns to the number of secondary turns being called the "turns ratio" or "transformer ratio". The transformer winding voltage ratio is thus shown to be directly proportional to the winding turns.

When connected to a source of AC power, current flows through the primary winding of a power transformer even when no loads are connected to the secondary winding. The primary winding remains

an inductor and lets some AC current through despite its reactance. This minimal current is called "Magnetizing Current" Also known as the "Exciting Current". This current establishes the magnetic field in the core and furnishes energy for the no-load power losses in the core.

Therefore, the answer to our question is:

1. Magnetizing Current.

~ 73, John VE7TI



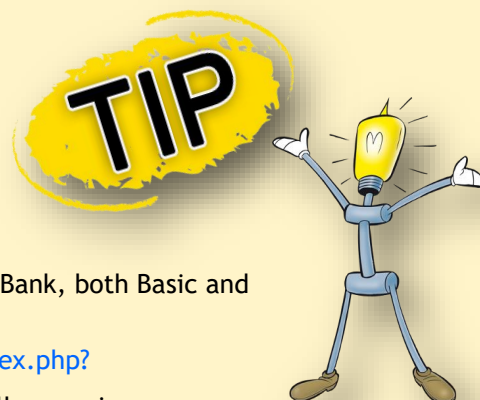
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Study Links

Whether you are new to the hobby or brushing up on skills, you should find these study links helpful:

1. RIC-7 is the entire up-to-date Industry Canada (IC) Basic Question Bank.
<http://tinyurl.com/CanadaBasicQB>
2. There is a RIC-7 that has some explanations along with the questions.
[RIC-7 2014rev08.05 with explanations.](#)
3. The Amateur Radio Exam Generator is at:
https://www.ic.gc.ca/eic/site/025.nsf/eng/h_00040.html
4. The ExHaminer Study software for Windows is at:
<https://wp.rac.ca/exhaminer-v2-5/>
5. The Ham Study website has a flash card approach to learning the Question Bank, both Basic and Advanced. It is at: <https://hamstudy.org>
6. Exam Primer with answer checking: <http://www.fcrc.ca/ExamPrimer/index.php?>

Contact SARC if you wish to write the Basic or Advanced Exam. If you pass we'll even give you a year's free membership!



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Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6 08-1000 Club Social: Kalmar Family Restaurant King George Blvd & 81st Avenue CONTEST: Oceana DX Contest (SSB) California QSO Party (all modes)
7 CONTEST: Oceana DX Contest (SSB) California QSO Party (all modes)	8	9	10 1900 SARC General Meeting	11	12	13 08-1000 Club Social: Kalmar Family Restaurant CONTEST: Oceana DX Contest (CW) South Dakota QSO Party (all modes) 13-14 Oct Nevada QSO Party (all modes)
14 CONTEST: Oceana DX Contest (CW) South Dakota QSO Party (all modes) Nevada QSO Party (all modes) Arizona QSO Party (all modes)	15	16 1930 SEPAR Net 2000 SARC Net	17	18	19	20 08-1000 Club Social: Kalmar Family Restaurant CONTEST: New York QSO Party (all modes)
21 CONTEST: New York QSO Party (all modes) Illinois QSO Party (all modes)	22	23 1930 SEPAR Net 2000 SARC Net	24	25	26	27 08-1000 Club Social: Kalmar Family Restaurant CONTEST: CQ WW DX (SSB)
28 1831: Faraday discovers Induction CONTEST: CQ WW DX (SSB)	29	30 1930 SEPAR Net 2000 SARC Net	31 SARC Exec Meeting 	<div>For details on all SARC events, go to ve7sar.net</div> <div>For details on all SEPARS events, go to separ.shutterfly.com/calendar</div>		

Contest Details: <http://hornucopia.com/contestcal/contestcal.html>



Page 13—News You Can Lose

The Lighter Side of Amateur Radio

Lack Of Cash No Problem For DX'er

By WBØRUR, on the scene

WEST HELENA, Alabama - Local amateur radio enthusiast “Junior” Thompson says he’d be perfectly fine purchasing a radio from China, if he could pronounce the brand’s name.

“Woosie? Whosin? Wax On? Wapner? Oh, I can’t ever figure it out!” laments the retired cable television installer. “The radio looks like it’s got a lot of great features for the price. But I just get all confused when I start to order it.”

In recent years, imported UHF/VHF radios such as Wouxun and Baofeng have made steady inroads in the U.S. market. And while U.S. hams understand these less expensive radios may come with user-friendly trade offs (difficulty in programming memory channels, etc), hams are often willing to accept the inconvenience in exchange for lower prices.

“I miss the good old days of radio,” opines Thompson. “Why can’t we go back to American names like Yaesu and Hammerlund?”

~ Ham Hijinks



"Ooooh... YOU thought I was a radiologist! No, I'm a radio-ologist! I repair radios!"



At The Last SARC Meeting

September General Meeting Minutes

Wednesday, September 12, 2018

Location: EM BC PREOC

Meeting Start Time: 7:06pm

Attendees: 31

Welcome

Stan Williams welcomed everyone back after the summer hiatus.

Announcements

John Brodie: About notifying Industry Canada about our recent silent key Brett Garrett. Consensus Don Hamilton may be approached when he's back.

Several visitors attending today introduced.

Financial Report from Scott Hawrelak

Annual dues now payable.

SARC Name badges are available \$10 each and an order will be placed soon. A copy of end of year financials are available at from Scott.

Committee Reports

JOTA

Ed Vandeyck: Jamboree On The Air to get scouts on the air. Its Oct 20-21 and similar to field day. It will be a camp out this year. We want to engage the scouts at multiple levels with possibly 2-3 radio stations. Morse Code, Antennas, Radios. A fox hunt would be ideal if possible.

The activities are not limited to Ham Radio. There will also be STEM activities along the fields of science etc.

John Brodie will be helping coordinate the efforts from the SARC group. Other groups including Langley will be involved.

The scout camp is at Camp McLean near Campbell Valley (200th and 16th in Langley)

Some flyers are available at the front for those interested in learning more. Contact John Brodie.

John Brodie: Recommend we setup a site visit.

More info can be found here

<https://scoutdocs.ca/Camps/Camps.php?camp=mclean>

Christmas Party

Jinty Reid: Phoned Newlands and they are working on their menu still but will contact her when they have that info. There are two dates available Dec 1st and Dec 8th. A show of hands favoured the 8th.

Communicator

John Schouten: Already well into the October edition. The blog site provides him with statistics and for the first time ever the number of Communicator downloads there has exceeded 1000 with visits world-wide. There are additional downloads from other sources that are not quantifiable. A big thanks to those that submit articles each month.

Membership

John Brodie: 79 paid members today, and 22 not paid yet. We also have 29 non paying members that are Ham Class students that may renew. 130 member total (29 unpaid)

A reminder will be sent out soon.

OTC

John Brodie: Wire antenna has dropped about 20ft and the rope may have slipped.

We have now had 4 failures of Dunestar triplexers. John is seeking approval of the membership to purchase a NEW triplexer priced near \$400 CAD. 160/80/40 bands. We might pass on 160 and just go with 80/40 since we don't have a 160m antenna right now.

Stan Williams moved that the OTC committee be approved to purchase the needed triplexer. Seconded by Robert Fishwick. Discussion continued among those attending.

Carried.

John Brodie: The yellow tower is filthy and paint is peeling off of it. A volunteer is needed to help power wash and clear the weeds around it. Michael Birtles volunteered.

Repeater

Stan Williams: There was a site visit last Friday to investigate cross talk from UHF to VHF.

Miscellaneous

Stan Williams: A thank you to the NEW directors for volunteering.

Jeremy Morse: Reported hearing someone regularly opening IRLP without providing their callsign and effectively listening.

Stan Williams: We are out of the HF Ferrite beads and would like to purchase some additional. Stan moved that we purchase a large batch of approx. \$600 (to get a price break at 50) but many would be sold back to club members. Seconded by Scott Hawrelak.

Carried.

Contesting

John Brodie: We completed 4 contests over the summer and had about 12 members involved.

John provided a summary of several contest events. Despite the band conditions we did quite well. The CQ WW DX contest is coming up soon and we are looking for those interested in participating.

Coffee break: 8:05pm Return: 8:30pm

Member Survey

John Schouten: A survey is being passed around to the membership to try and collect some information about each person's activities and interests. Results to be shared when compiled.

Future SARC Direction

Stan Williams: We are looking into adding public service as well as emergency components to our group's activities. Surrey Doors Open was well attended this last year and was a success. The SEPAR Society may be dissolved at their next AGM later this month—this has no effect on the City of Surrey's SEPAR program. Where do we go from here? Will be reported on after the SEPAR AGM.

Future Meeting Topic Suggestions

- APRS for off roaders. Possibly presenting about APRS and how to build a low budget APRS kit.
- How to operate during an emergency. Hands on demonstration
- Meteor scatter using FT8? 6m is popular right now?

SARC Name Change?

Stan Williams: What about a possible name change for the Surrey Amateur Radio Club? SARS (Society) SARA (Association). How does the membership feel about a name to better reflect our program and activities?

A discussion followed on reasons for doing so and that 'Club' tends to leave the impression that we are social organization instead of a society with a role in community service. Various points of view were put forward but the membership was generally not opposed to a change. This was an initial check for the opinions of the meeting attendees and further discussion will follow.

Meeting Adjourned: 9:18pm

~ Jeremy VE7TMY



The most recent Basic licensing class started on September 11th

October 2018



Guest Columnist

Don Hamilton VA7GL

Surrey Amateur Radio Club Public Service Committee

VECTOR's Mission:

VECTOR exists as the organizing vehicle for members of the amateur radio service to build auxiliary emergency communications capability to enhance community resiliency in the City of Vancouver.

VECTOR's mission is communications preparedness and the most important element of readiness is people, not technology. Through recruitment, training and exercise we develop our diverse volunteer team to plan and prepare for those times when we are called upon to serve.

SARC is considering how it can best reinforce its Constitution, whose purpose in part is stated to be "To assist the Community in the event of an emergency or wherever communications may be required."

The newly formed SARC Public Service Group will strive, over the next fiscal year, to focus on strategies and changes to insure SARC is meeting or exceeding the public service commitment to its membership, all levels of government and its community partners by incorporating lessons learned from other local amateur radio emergency organizations.

SARC's Board of Directors created the Public Service Group to review SARC's overall public service programs and recommend changes and improvements. The Group will particularly focus on, volunteer recruitment, training, organization and community support to supplement and strengthen existing municipal programs.

Therefore, to start the process I've suggested that the Group look at how two regional Public Service groups operate and interface with their community, namely VECTOR and ARES, as appropriate models.

VECTOR is the Amateur Radio program for the City of Vancouver. They are not a club but an organization tied to that City as part of the emergency plan. They have all the people and systems in place to support their community for

both emergency and community events. Check out September's Communicator for an enlightening look at VECTOR.

ARES (Amateur Radio Emergency Service) is the Radio Amateurs of Canada program for all emergency amateur emergency communication. ARES is regulated by the ARRL (American Radio Relay League). ARES has recently changed their focus from Emergency Communications to the broader scope of Public Service.

In the months ahead, you will receive information, in the Communicator on developments related to SARC's public service program, including:

- How best we can assist the City of Surrey and other levels of government
- Mission statement
- Training requirements
- Operating guidelines
- Interface with Surrey Emergency Program
- Recruitment of volunteers
- Place of residence for the equipment and volunteers
- Changes, if any, required to SARC's bylaws

The first step in the evolution of SARC Public Service Group is how best to identify the group and to ensure it is not

confused with the Surrey Emergency Program Amateur Radio (SEPAR), which is operated and maintained by the City of Surrey with Amateur operators who have been security cleared.

While SARC's group encourages participation with SEPAR, it will have a broader focus, beyond emergencies and City of Surrey boundaries, and that will entail standardizing on a name - currently there is no way to identify SARC public service group members with a searchable unique designator.

~ Don Hamilton VA7GL



About the Amateur Radio Emergency Service (ARES)

The Amateur Radio Emergency Service (ARES) is composed of certified Radio Amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service when disaster strikes.

Every certified Radio Amateur, whether or not a member of RAC or any other local or regional organization, is eligible for membership in the Amateur Radio Emergency Service (ARES). The only qualification is a sincere desire to serve. The possession of emergency-powered equipment is desirable but not a requirement.

National Traffic System (NTS)

The NTS is the principal facility for medium to long range traffic. It is organized on the basis of daily operation, in consonance with the operating habits of the average Radio Amateur. In emergencies, NTS is geared to go into continuous operation in accordance with the needs and the extent of the particular emergency.

- An informative introduction: [Intro to ARES](#)
- Two articles related to this subject: "Amateur Radio Emergency Service and the Fort McMurray Fire: An Inside Look" - An article by Al Parsons, VE6RFM, cover story of the July/August 2016 issue of [The Canadian Amateur](#) magazine.
- How Field Day became a Reality: The Story of the High River, Alberta Flood of 2013, the cover story of the September/October 2013 issue of [The Canadian Amateur](#) magazine. An article by Vince d'Eon, VE6LK - Foothills Amateur Radio Society/ARES, Okotoks, Alberta with contributions from Kerry Atkinson, VE6GG and Ian Burgess, VA6EMS.
- [ARES Manual](#)



October 2018

Surrey Club News

John Brodie VA7XB

A Look At Our Repeater



On Friday Sept. 7th, Slawa VE7LWW, Michael VE7GMP and John VA7XB visited the repeater to inspect and consider needed maintenance in response to complaints of cross-talk between the VHF and UHF repeaters. Further testing will have to be done to isolate the problem but, in the meantime, if someone is using the SARC repeater on UHF, their garbled signal may also be heard on the VHF repeater. Please bear with us while we look for the solution.



Useful SARC Repeater Functions:

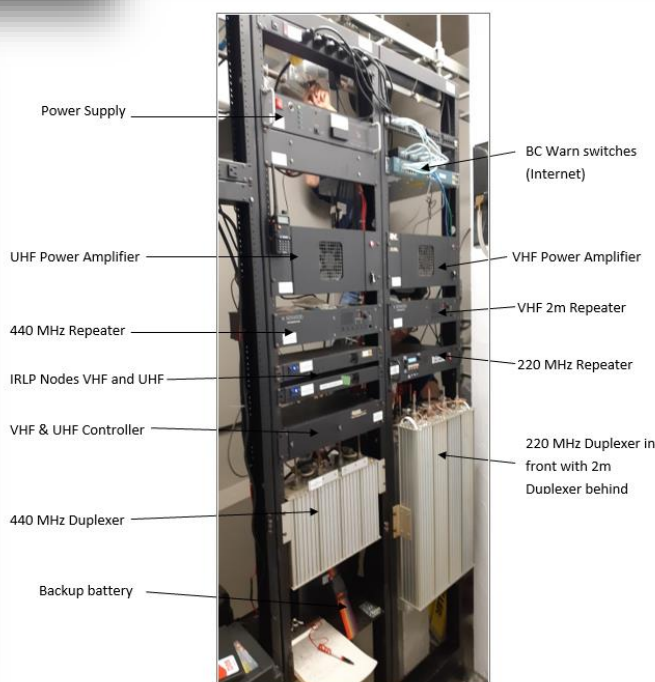
Signal check:

The repeater can make a short recording of your audio and play it back to you to assist you in testing your radio. To initiate a signal check:

1. Identify, then hold the PTT, dial "A3", release PTT
2. The repeater will respond "RX Check ready."
3. Hold PTT, provide some test audio, release PTT.
4. Once you release PTT, the repeater will respond by playing back your last transmission. Give it a try, it's a handy feature. Some of us use it several times a day.

To initiate an on demand time of day announcement:

1. Identify, then hold the PTT, dial "C", release PTT.
2. The repeater will respond "The time is, XX:XX am/pm."



The Contest Contender

John Brodie VA7XB

September Contests



SARC members participated in two contests during September. The first one, the Worked All Europe (WAE) contest for SSB on the weekend of Sept 8-9, was somewhat of a disappointment as propagation from the West coast into Europe was almost non-existent. Robert VA7FMR and John VA7XB fought an S9 noise level on 20 m to put in a few fruitless hours for a total of only 17 European contacts across the North Pole (only EU contacts with North America count in this contest). Very few seemed to be attempting the impossible, i.e. the bonus points for QTC messages, under these conditions,. From what we observed, a high productivity was only achievable from the East Coast where a couple of hops across the Atlantic make it possible to do business with Europe at this time of no sun spots and high noise levels.



What's coming up for October?

6-7 Oct	Oceana DX Contest (SSB)
6-7 Oct	California QSO Party (all modes)
13-14 Oct	Oceana DX Contest (CW)
13-14 Oct	South Dakota QSO Party (all modes)
13-14 Oct	Nevada QSO Party (all modes)
13-14 Oct	Arizona QSO Party (all modes)
20-21 Oct	New York QSO Party (all modes)
21-22 Oct	Illinois QSO Party (all modes)
27-28 Oct	CQ WW DX (SSB)

By 1500 hr local Saturday on 20 m, not a single European station could be heard from VE7SAR and all other bands were dead.

One more contest will be attempted in September, which is too late for reporting in the October Communicator. Stan VA7NF will be in charge of the group participating in the CQ WW DX (RTTY) contest on Sept. 29 and 30. Even if propagation doesn't improve for DX, there should be lots of activity as all stations can work all stations, regardless of location.

QSO Parties for New Jersey, New Hampshire and Iowa take place on Sept 16th, but a club event was not planned, leaving it open for individuals to operate the club station using their own callsign.

~ John VA7XB

October 2018



Radio-Active

Robert Fishwick VA7FMR

Profiles of SARC Members



Nell Wrotniak
VA7PE

Nell was born in Vancouver, B.C. on January 14th, 1952. she is the oldest of three girls. They lived in Vancouver until she was in grade 2 and then they moved to Burnaby. Her sisters and Nell all lived in Burnaby until they married. Their mom was a "stay-at-home" mother. She did a lot of volunteer work in Burnaby and was even nominated for a "Citizen of the Year" award and finished as the runner-up.

Nell's father was a Professional Engineer (Mechanical). Besides her dad's engineering career, his biggest hobby was art. He enjoys painting oil paintings. Besides living in Burnaby, her parents owned a house on North Pender Island (in the Southern Gulf Islands) on Cutlass Crescent in Magic Lake Estates. Many happy hours were spent there.

Her dad is now 89 years old and he still has a shortwave radio beside his bed so that he can listen to Europe, particularly Holland, the family's origin. So, it is no surprise that Nell has such a love for Amateur Radio.

Nell graduated grade 12 in Burnaby and then went on to Douglas College and attained a Diploma in Science. She then attended the University of British Columbia and attained her Bachelor of Physical Education Degree with concentration in Geography. She likes to take courses in Continuing Education and she has Food Safe, her Marine Radio Licence, her Boater's Licence and First Aid, etc..

Nell attained her level 2 Coaching Certification in each of the following sports: Basketball, Baseball, Volleyball and Bowling. So, over the years, She had a lot of fun with coaching in these sports. A lot of great memories coaching at the high school level for five years and coaching provincially, these memories She will never forget.

Nell and her Husband also enjoy going to watch the Vancouver Canadians baseball games. Their son played baseball for Douglas College. He was a pitcher, so baseball has been a big part of their lives for many years. They also enjoy boating, kayaking and fishing. They do a lot of volunteer work in the community and that has become like a hobby to them. They help raise money for the underprivileged at one of the Elementary schools in Langley. Once a month, sometimes twice a month, they make sandwiches for people on the streets in the east side of Vancouver. They are members of the Langley Emergency



Program and are a part of their Emergency Communications Team. As well, they are very active volunteering at their local church.

She has always wanted to learn how to sail a small dinghy. So, maybe one day that will happen. She sometimes, thinks about taking some courses at Bible School and she thinks about all the work it would take and she forgets about that idea very quickly, but - who knows?

At the San Diego Wildlife Safari, in Escondido, California Nell and her husband Ralph saw a rare, white baby rhinoceros born. It made the news around the world and they were there the first day and caught a very good glimpse of it.

In the future, Nell and Ralph, would like to travel more. They would like to see more of the United States and Canada and, eventually, get over to Europe. They have property on North Pender Island and would love to build a cabin on it with a high-raised area from where they could operate their ham radios. It would be great to have the property as a "ham radio retreat" for the two of them and their friends.

Nell would love to learn Morse Code but so far, she is finding it very challenging. However, slow and steady wins the race. An aspect of Amateur Radio that especially interest her is satellites. Nell also finds radio contesting very intriguing and she would like to get into it more. Nell just wants to learn everything she can about Amateur Radio as she enjoys it very much.



Nell preparing lunch at SARC-SEPAR Field Day 2018

Nell and Ralph both appreciate SARC. It has added so much to their lives. She says the members are all really super people. They are both really amazed and happy about how the Club equipment (radios, etc.) are of such high quality. They really appreciate how the club brings in guest speakers so that they can learn more.

She just wants to thank all of the SARC members "For how nice they are and have been to Ralph and I". Without having Amateur Radio and the SARC Club in their lives, their lives would just not be the same.

Thank you—SARC ROCKS!

~ Robert VE7FMR

Membership Fees Are Overdue

Please note that we are now into our new fiscal year and your annual membership is overdue if you have not paid. Payment may be made at any monthly meeting, at the Saturday coffee meeting, by mail or via PayPal. Details on payment options are available at our website at: <http://ve7sar.net/join.html>



October 2018

Surrey Emergency Program Amateur Radio



The SEPAR Report

Roger Andrews VA7VH - SEPAR Coordinator

SEPAR Society Changes

I just quickly wanted to address some concerns that I've heard around the dissolution of the SEPARS society. The change has little to do with the actual operation of SEPAR as a volunteer group. The Society's only real purpose was to acquire gaming grants. SEPAR was in existence before the society and will continue afterwards. The relationship that the SEPAR members have with the City of Surrey and the relationship that SEPAR has with SARC does not change. SEPAR will continue as the emergency communications provider for the City of Surrey. The only change has to do with where the money for our existence will come from. Since that money can no longer come from Gaming grants, the society is redundant and just costs money and time to keep around.

SEPARS is not a representative to the City on behalf of the SEPAR members. While it is true that with the Society in place, members can have a vote on the direction of the Society, that direction has little to do with the relationship between the City and the members. The active SEPAR members have a voice. Surrey has committed to having regular meetings not only with the SEPAR coordinator but also with the active members, as we did a few months ago. Another meeting will take place once the Society issue is resolved.

I hope this clears up the concern that somehow SEPAR will cease to exist, or have no representation in the future.

The SEPAR Annual Competition

Every Year starting this April 1 2018, we start a competition that active SEPAR members can participate in. The most active member will win an MD390 DMR Radio package. You can checkout pictures of the radio and see the rules on <http://va7.ca/radio> (an interim website).

If you are not now a member, we'd love to have you on-board. Contact me at the link above.

Weekly Nets

Every Tuesday evening at 1930 hrs (7:30pm PDT) we start a ½ hour NET on a local repeater provided by the Surrey Amateur Radio Club (SARC) on 147.360 MHz +600kHz and a tone of 110.9. There may be a simplex test or a test NTS message transmitted during the NET at the Net controllers discretion. This is an excellent opportunity to practice sending and receiving this form of messaging. Besides, it adds a little spice to the regular check-ins on the net. Please join us. NTS Radiograms can be found on the SEPAR website here, or, if you would like a fillable PDF that you can enter on your computer, you can get it from here.



Surrey Emergency Program Amateur Radio

Thursday nights at 19:30 hours, This Net has changed! We are no longer doing a regular 2 meter simplex Net on this night. Any plans for Thursday night will be announced on the Tuesday before. This night will now be used for optional tests. For example NTS Digital exchanges, 6 meter, 2 meter 60 cm and 220 Nets. If someone wants to do a particular net on a Thursday, then please announce it on the Tuesday before.

~ Roger VA7VH
SEPAR Coordinator



Name	Frequency	Offset	CTCSS
VE7RSC	(Primary Repeater) 147.360	+0.600	110.9
VE7RSC 443.775	(Secondary Repeater)	+5.0	110.9
VE7RPT	(Primary Regional Repeater) 146.940	-0.600	Optional 136.5 Rcv
Simplex 1	(VHF) 146.550		
Simplex 2	(VHF) 147.420		
Simplex 3	(UHF) 446.550		
Simplex 4	(UHF) 447.425		

Other frequencies in the Greater Vancouver area:

Primary:	Coquitlam/Abbotsford	146.430
Primary:	Inter-Municipal Group 3	146.445
Primary:	Vancouver; Mission; Sec. Coquitlam	146.460
Primary:	Kent-Mission; Sec. Richmond	146.475
Primary:	Inter-Municipal Group 2	146.490
Primary:	New West; Sec. Richmond	146.505
National	Calling / FM Simplex Group I	146.520
Primary:	North Shore; Port Coquitlam	146.535
Primary:	Bowen Island; Surrey	146.550
	Intermunicipal Group 1 Coordination	146.565
Primary:	Lions Bay/Vancouver/Delta/Langley	146.580
Primary:	Port Moody; Sec. Burnaby	146.595
	Secondary: Vancouver/Surrey	147.420
	Secondary: Vancouver (UBC) / Maple Ridge	147.450
Primary:	White Rock/Chilliwack; Sec. No. Shore	147.480
	Secondary: Burnaby/Pitt Meadows	147.510
Primary:	Delta; Sec. Abbotsford	147.540
Primary:	Hope; Sec. Delta; ALSO EMBC	147.570

October 2018



A Communicator Reprise

From Summer 2011

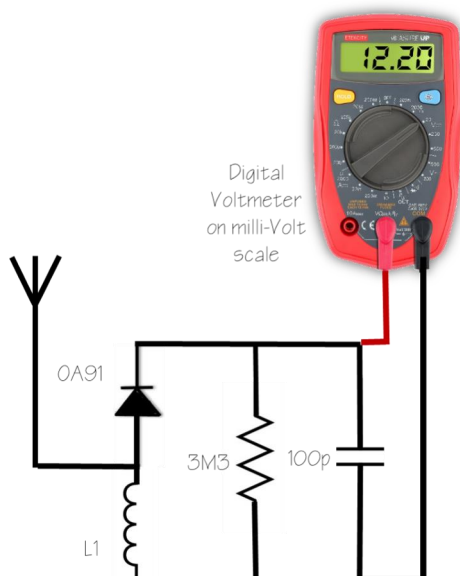
A Simple Field Strength Meter

A field strength meter is an instrument that measures the electric field strength emanating from a transmitter. A field strength meter is actually a simple receiver. After a tuner circuit, the signal is detected and fed to a microammeter or, in this circuit, a digital voltmeter.

Anyone use a field strength (FS) meter anymore? It's kind-of like a radiometer for RF energy. Remember the radiometer? It's those little black and white squares that spin inside a glass ball when light shines at it; the brighter [or hotter] the light, the faster it spins. Cool "instrument" from the 1870's.

Well a field strength meter is sort of like that, in that in its heyday, it was used by Hams and CB'ers to measure the transmitted signal strength of an antenna

from a distance usually 1, 3, or 30 metres or whatever measured distance you had. As long as the meter was "calibrated", one could set up the antenna, mount a FS meter X number of feet or metres away, pump 1, 5, 10 or 100 watts out of it and measure the "strength" of the RF field at that measured distance. It was simple, you could tune for maximum meter deflection, usually meant your SWR was at its lowest. An OK tool if you didn't have a sophisticated watt meter or new-fangled SWR bridge.



Today, it can be used by the Ham antenna experimenter to measure the gain of the antenna - in RF volts or Db or whatever scale you had labeled on your meter, even S-units. A sensitive FS meter can pick up low power bugs, or any source of RF energy - guess what those ghost hunters use? More useful if you spent big dollars and put a tuned circuit, attenuators or a pre-amp in the circuit, and of course lots of LEDs.

But of course, good RF meters are expensive and somewhat hard to find, not many at the swap meets these days and they are usually combined with other types of measuring devices, Watt or SWR meters, and therefore more money than the typical cheap Ham wants to dish out.

Solution... make your own!! OMG! What a concept! A simple FS meter is the simplest thing to make and is good enough to see if the antenna under test is radiating more power than your old ground plane, old mobile vertical or just radiating at all in a particular direction or in all directions.

Here is what you need

- A digital voltmeter (DVM) with a DC millivolt scale - every Ham should have a few in their shack.
- A Germanium diode, just about any one, as long as it's Germanium, like 1N34, 1N270, 1N914 or 1N100. The best one, a non-North American standard. The super-sensitive OA91 from down under or Europe/UK -

Great for your crystal radio project too.

- A 3.3MΩ 1% resistor, 1/8 or ¼ watt.
- A 100 picofarad capacitor
- And a hand-made inductor [L1] of 7 turns on a ¼ inch coil form with a ferrite slug (some experimentation required to cover the North American FM Band) 24 to 28 AWG lacquered wire.
- Some miscellaneous parts like an antenna or antenna connection, a tiny box to put it all in, and some jacks that your DVM leads will insert into.

Using a digital meter, as opposed to an analogue meter has a few advantages in this circuit.

First, the impedance of a DVM is very high, around 10MΩ per volt on most meters. This will not shunt or load down the tank circuit. Second, compared to an

analogue meter, very slight differences in signal strength can be more easily observed. An third, a digital meter will have better linearity responding well to both weak and stronger signals.

All you want to see is the numbers, the higher the number, the more signal strength. Just remember a few basic rules. Keep the distance and power out the same for all your experiments, and turn off all your APRS trackers and digipeaters as they will want to add their 2-cents worth to your measurements.

If you have it in a hand-held configuration, you can “see” lobes, minimum and maximum RF fields as you walk around your test antenna. Oh, and then put a set of crystal ear plugs in place of your DVM and you might just hear the nearest AM broadcast station... well, at least until they all go digital.

~ The Communicator
Summer 2011

If you'd rather not build your own, the basic MFJ-801 Field Strength Meter show the strength of the actual field being radiated from your antenna. You can use it to determine the basic radiation pattern of your antenna and see which direction your signal is strongest. You can make changes to your antenna and instantly know if it radiates better or worse. You can compare one antenna to another find out which HT antenna radiates the strongest signal?

Measure your HF antenna now and compare it later to make sure its performance is still up to par. Adjust a ground lead, artificial ground, counterpoise or tune your transmitter or antenna tuner for maximum field strength. You can check for RF floating around the shack that may be caused by faulty antennas or poorly shielded equipment. Demonstrate the concept of gain or antenna polarization. Find hidden transmitter bugs at office or house. Usable from 100 kHz to 500 MHz.

Size is 2.375 x 3.675 x 1 inches. A non-removable 20 inch telescopic antenna is included. US\$ 27.95



Social Reminders

The Surrey weekly social gathering is on Saturday at the Kalmar Restaurant at 80th and King George Boulevard between 8 and 10:00 am. You don't have to be a SARC member to participate. Bring your significant other, bring your family, see old friends and have fun.

October 2018



The Sale Is On!

A Large Donation Means Bargains Galore...

SARC has received a donation of surplus items including Iridium and Globalstar satellite communications gear, marine VHF radios and some test equipment from a person who has recently retired from that business.

This is not amateur radio gear but may have some use by those familiar with satellite telephone, commercial repeaters and VHF/UHF.

If you are knowledgeable about this type of equipment, we could use your advice in determining its value for sale and/or completing repairs. Please contact sarc@ve7sar.net if you can assist.

The IFR 1200S test apparatus unit is reputedly in need of some attention but here are its advertised features:

- FM Signal Generator
- AM Signal Generator
- 2 μ V receiver for AM, FM and SSB
- RF frequency error meter with 1 Hz resolution
- Audio frequency error meter with 0.1 Hz resolution
- Deviation/modulation meter
- Duplex generator
- RF wattmeter - fully protected generator output to 150 Watts
- Relative signal strength meter
- SINAD/distortion meter
- Audio function generator with DCS (Digital Coded Squelch) encode and decode

- Tone Pulse dialing (variable)
- Pulse (IMTS)
- 1 kHz audio generator
- Oscilloscope
- Spectrum Analyzer
- RS 232 interface





Scouts Jamboree On The Air

John Schouten VE7TI

Looking for Volunteer Operators On Saturday October 20th

JOTA-JOTI is the largest Scouting event in the world with over 1 million Scouts participating across 150+ countries.

The event is held the third weekend of October, this year on the 20th and 21st.

The event has been connecting Scouts around the globe for over 60 years. We have hosted this event at the Surrey OTC for the past 2 years but this year it promises to be bigger and better as it will be held at Camp McLean in Langley at **20315 16th Avenue**, across from Campbell Valley Park

JOTA hopes to have sufficient operators for the following activities, similar to the school visits SARC and SEPAR have participated in the past. Depending on the number, Scouts will be split into groups that would rotate through suggested stations:

1. A basic intro to radio, what it is, how it works;
2. Morse Code practice, learn what CW is, practice sending their name on a practice key;
3. Digital messaging. Send a message via radio (WinLink) to their own email address;
4. Handheld communication between two stations outside. This may be replaced by a mini foxhunt if we can get the gear and bodies, weather permitting;
5. HF Contact; hopefully with another Scout group. We hope to have at least 2 active stations.

About the Event

The Jamboree on the Air, or JOTA, is an annual Scouting event that uses amateur radio to link Scouts around the world, around Canada, and in your own community. Held on the third full weekend of October each year, this worldwide jamboree requires no travel, other than to a nearby amateur radio shack, Scout meeting place, camp or community center.



JOTA started in 1958 (with the World JOTA Bureau located right here in Canada). In 1997, communicating through the internet was added, and this was called Jamboree on the Internet or JOTI for short. Both annual events are sanctioned and sponsored by the World Organization of the Scouting Movement.

In short, it's the best way to talk to half a million Scouts and Guides without having to leave your own community! More information at: <http://www.jota-joti.ca/>

At this time, full details are not yet available but will be sent to the membership via email. As the event will take place in Langley this year, they will take the lead. Surrey volunteers will be coordinated by John VA7XB. We are looking for several volunteers. If you are able to assist, please send an email to va7xb@rac.ca

~ John VE7TI

October 2018



KB6NU's Column

Dan Romanchik, KB6NU

3D Printed Parts For Ham Radio

One of the things that I keep telling myself that I need to learn how to do is 3D printing. This morning, I ran across a couple more 3D printing projects for ham radio that I thought I'd pass along.

The first I found on reddit: 3D Printed Parts for Portable Tape Measure Yagi Designs (https://www.reddit.com/r/amateurradio/comments/963br3/3d_printed_parts_for_portable_tape_measure_yagi/). The summary on Thingiverse (<https://www.thingiverse.com/thing:3042505>), which is a website where "makers" share their designs, says:

"These parts are made for use with 1-in. PVC pipe and 1-in. Harbor Freight tape measure steel. You can use electrical tape to attach the element holders to the side of the pipe, and use the driven element bridge to give structural rigidity across the driven dipole element. I have used this with up to 5 elements on 2m with good success. When not using the antenna, just pinch the elements to remove them from the holders, and store them INSIDE the tube! you can add some end caps to make this ultra portable. Use these parts with any of the multitude of tape measure YAGI design guides online."

On the left is a look at an antenna made with these parts.

The element holders are attached to the boom with electrical tape in the photo. While I haven't

tried it, I'd suggest that the antenna might be a bit more robust if you could screw or perhaps glue the holders to the boom.

There are lots of other cool amateur radio 3D printing projects available on Thingiverse:

(<https://www.thingiverse.com/search?q=ham+radio&dwh=415b6d8da129c3c>).

Browsing through the list quickly, here are just two that look like they might be useful to me:

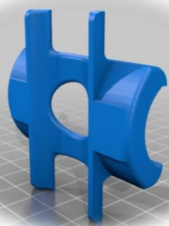
- Soldering Fingers (<https://www.thingiverse.com/thing:1725308>). This project looks simple and quick.
- µBitx Case (<https://www.thingiverse.com/thing:2925336>). I still gotta do something with the µBitx I bought. This looks like it might get me started.

Finally getting in gear:

Last week, I attended a 3D printing class at our local maker space, All Hands Active (allhandsactive.org), and now I feel like I can finally attempt a 3D printing project. I'm thinking about starting out with the simple Soldering Fingers project. If that goes well, I'll try a Raspberry Pic case and finally start using that in the shack. And, while these projects all seem pretty cool, I feel like I'm only scratching the surface.

Have any of you 3D printed anything cool for your ham radio projects? Is there another source of designs for ham radio 3D printed stuff besides Thingiverse?

~ Dan KB6NU
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Wire Snippets

Ham radio helps maintain cognitive skills

Australian media reports Amateur Radio is helping lifelong hobbyists stay mentally fit in old age. It comes with all the benefits of social media but without "any of the downsides" — and one of Australia's oldest ham radio enthusiasts says it is also the perfect hobby for retirees looking to stay mentally sharp. West Australian-based Norman Gomm VK6GOM took to ham radio over forty years ago and now aged 82 has no intention of signing off just yet. He says it is rare that a day goes by without him spending at least a couple of hours in his purpose-built 'ham shack. I'm 82 years of age and you need to keep your mind working actively all the time," he said. Ham radio requires a lot of cognitive skills and a lot of understanding technology, so I find that's very good for keeping me active."

Watch the video here: <https://goo.gl/Rhu4Dd>

CQ-DATV issue 63 the online ATV magazine is now available for free download (no login required) <https://www.cq-datv.mobi/63.php>.

From Julian OH8STN: The latest version of FT8Call has a can now send our maidenhead grid locator to aprs over HF u tutorial on how to do that: <https://youtu.be/mQxmhPqcQzA>

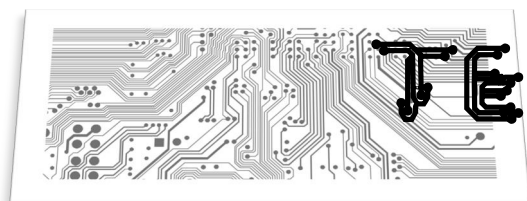
Alex VE7DXW reports that **new sunspots are forming** at an amazing Rate. Conditions at the MDSR test station are reasonably good considering that the Solar Flux just fell right into the bottom and is right now at 67. There is no NOAA alert, but it I amazing to watch how fast this new area develops. Is it the new solar cycle???

You can watch the movie right here:

<https://www.swpc.noaa.gov/communities/radio-communications>

The atomic clock time signal station that synchronizes time devices, may be shut down next year if a presidential budget request passes as proposed. <https://goo.gl/Z72RZ1>

October 2018



John Brodie VA7XB

HF Bandpass Filters, Diplexers & Triplexers – Some Fundamentals

Several stimulating discussions around the Saturday morning club breakfast table have taken place recently in connection with our use of bandpass filters, diplexers and triplexers. This article is designed to remove some of the mystery surrounding these devices, which we use both at the OTC and at Field Day. Although the discussion relates to HF devices, the same general principles apply to VHF and UHF.

Introduction

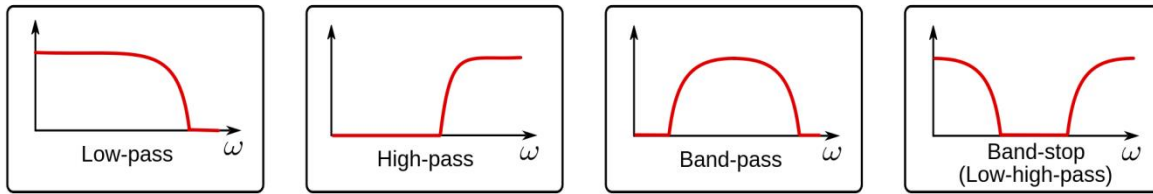
As propagation conditions change throughout the day, week and year-to-year, HF stations need to have the flexibility to change to those bands which are open. Typically 20 m is open during the daytime hours with 160, 80 and 40 m opening up in the evening and nighttime hours. In years when sunspot activity is greater, 15 and 10 m also open up during the day. Currently we are near the sunspot low with the result that DX contacts are a challenge at any time of the day with only the low bands consistently productive for DX.

Ideally, a transceiver will utilize an independent antenna for each band on which it operates. However this is not always possible, where space does not permit or when several transmitters are operating simultaneously (at Field Day, for example). So we may deploy a multi-band antenna in conjunction with electronic devices that will allow more than one transmitter to use this single antenna, so long as each transmitter is operating on a different band.

SARC's first exposure to these electronic devices was ca 2015 when we acquired a set of bandpass filters and triplexer for use with our 10-15-20 m TH7 beam antenna. This was successful and allowed us to have the one antenna on a high tower serve multiple transmitters without significant mutual interference.

Then a couple of years ago at Field Day, we began using an off-centre fed long wire for 40 and 80 m. During the late evening hours these two bands were the only game in town, so the antenna was in demand by two stations simultaneously. Again, a triplexer and bandpass filters allowed this to happen. Alas, one of the devices failed at the critical time.





In 2017, we acquired an identical set of the devices described above for use at the OTC, where we have a tri-band beam for 10-15-20 m plus an OCF dipole for 40 and 80 m. Once again, the 160-80-40 triplexer failed during use.

This could not continue as failures in these devices place expensive radios in danger of serious front-end damage (i.e. smoke) due to strong other-band signals not being adequately blocked. It was time for serious reflection about our physical setup.

A Review of Some Basics

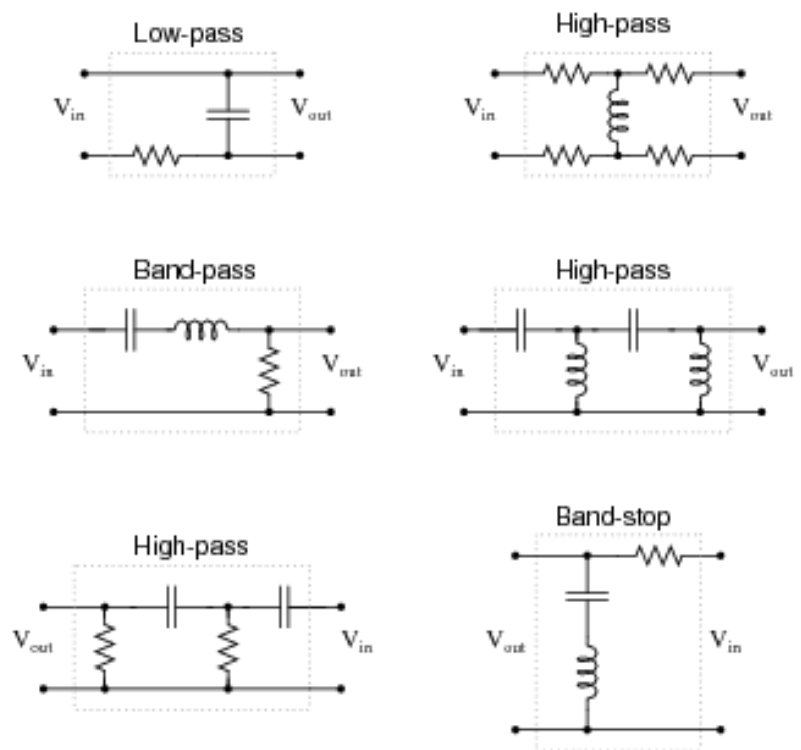
Inductors tend to pass lower frequencies and capacitors high frequencies. In other words inductors have a low impedance to low frequencies and capacitors the reverse, the resultant reactance or impedance depending on the value of the inductance, capacitance and frequency.

An inductor connected to a capacitor will have a unique frequency at which the pair resonates, called the resonant frequency. At exact resonance, the inductive reactance equals the capacitive reactance expressed as $X_L = X_C$ and the impedance will either be very low or very high depending on their parallel or series configuration. The effect of resistance in any practical circuit does not change the resonant frequency but it does affect the sharpness (or Q) of the tuning.

In other words, an inductor in series with a capacitance has a low impedance at its resonant frequency, but the same pair connected in parallel exhibits a high impedance to the flow of current. These properties are the basis of many types of radio circuits, used most notably for tuning purposes. They can also be deployed in various combinations as RF filters and in power supply filters to change pulsating DC to "pure" DC.

A low pass filter will pass low frequencies and block high frequencies. A high pass filter does the opposite. Bandpass and bandstop filters allow a band of frequencies to pass or be blocked, respectively. The figures above show the generalized frequency response of the 4 basic filter types.

Below are some simple examples of L-C circuits used in practice for the various kinds of filter devices. The presence of R in the circuits represents loads but otherwise does not affect the general type of filter and can be ignored for the sake of this discussion.



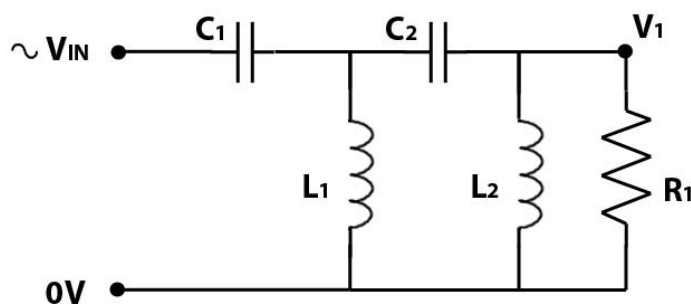
Intuitively, it is not difficult to determine which type of filter it is by examination of the circuit, if you think of the way L and C respond to low and high frequencies, whether in isolation, in

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series or in parallel when presented with a range of different frequencies.

More complicated circuits have been devised that improve the performance of these basic circuits and make them more useful. A study of such devices will bring forth variations named for the engineers who studied their properties, such as Butterworth, Chebyshev, Cauer and Bessel. More complicated circuits are not within the scope of this introductory article, but a comprehensive discussion can be found in any ARRL Handbook.

The complexity of a filter circuit is described in terms of its "order", a measure of the number of L and C elements. Here, for example, is a 4th order high pass filter:



Practical Devices

A diplexer allows two transmitters to feed one antenna or, conversely, two antennas to serve one transmitter (don't confuse a diplexer with a duplexer, which is a different animal). A diplexer simply consists of a low pass filter and a high pass filter operating in parallel, with the cutoff of each somewhere between the two operating frequencies. With an HF unit used to separate 40 m (~7.0-7.3 MHz) from 80 m (~3.5-4.0 MHz), the cutoff frequency typically would be 5 MHz.

A diplexer may be able to discriminate 80m from 40m signals by 20-40 dB. While 20 dB represents a power suppression of the unwanted signal by a factor of 102 it is insufficient to protect the radio.

That is why an HF diplexer is seldom used by itself. A bandpass filter in series with the diplexer might suppress the unwanted frequency an additional 40-60 dB depending on its design. So the diplexer and bandpass filter, operating together, would typically suppress the adjacent band signal by a total of 60-100 dB or a factor of 106-1010.

If a triplexer rather than a diplexer, is desired to facilitate a third band, the problem becomes more complex. The "middle" frequency would necessarily have to be a bandpass filter.

One problem is that the size of components for diplexers and triplexers for 160, 80 and 40m bands will be large. This size factor and associated high cost generally make high power diplexers, triplexers and bandpass filters quite costly.

Our Devices

Our Dunestar triplexers appear to be rather simple filter circuitry. Why do these units fail repeatedly, even with the radios operating at 100 watts? It can only be inadequate current or voltage ratings on the components or excessive SWR, or both. This would suggest that the antennas connected to the triplexer should be close to resonant at the desired frequencies. Operating at extreme ends of the band, especially under Field Day conditions when time does not always permit "tweaking" of their length, height or configuration may produce unacceptably high SWR.

Here is the lesson we have learned: carefully research the characteristics of the diplexer or triplexer you are considering for purchase. Not only are the band isolation and insertion loss important, but the need to have conservative voltage and current ratings on components is critical. Then do not deploy these devices on antennas where a near resonant condition cannot be achieved.

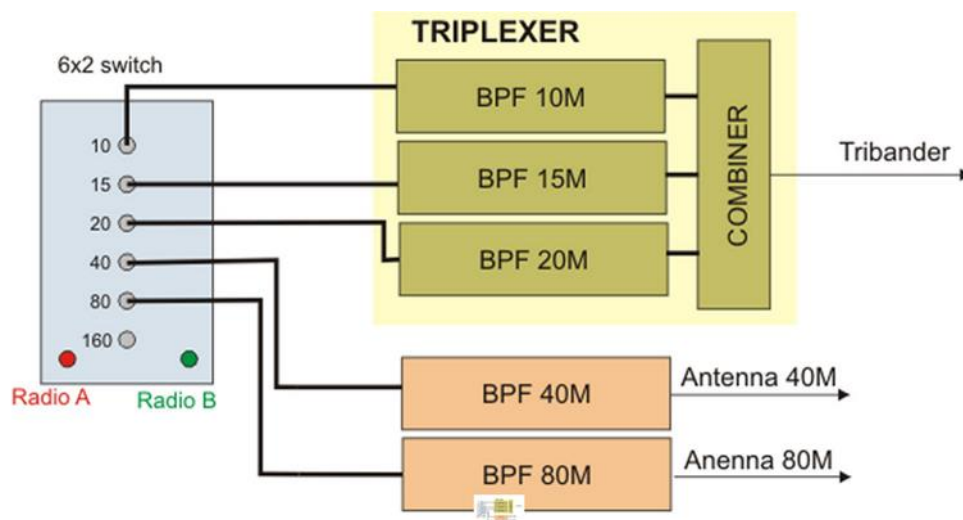
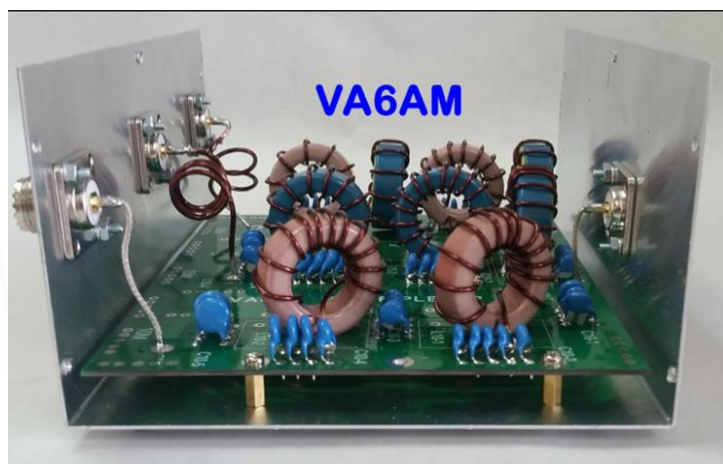
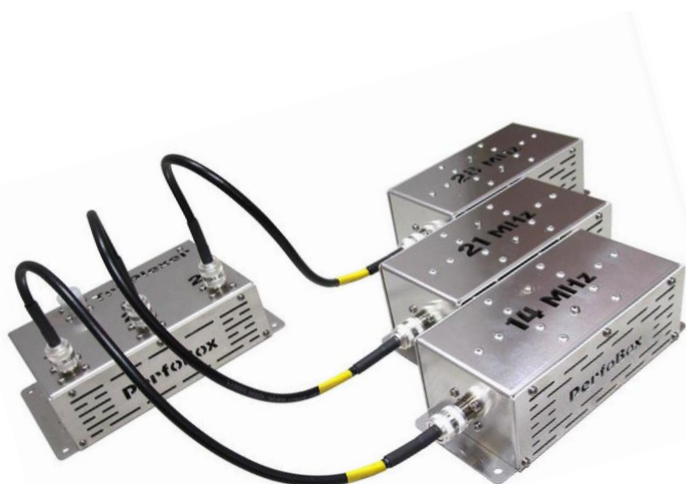
Conclusion

We will probably replace both our Dunestar 160-80-40 triplexers with more robust devices to ensure another failure does not happen. Units available from VE6AM (www.va6am.com) and DX Engineering (dxengineering.com) and 403A (www.403a.com/products/high-power-filters/combiner/) are under consideration to meet this need.

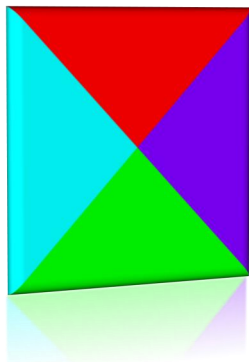
More good reading can also be found at:

https://static.dxengineering.com/global/images/technicalarticles/lbs-pb-tp500_sn.pdf.

~ John VA7XB



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Foundations Of Amateur Radio

VK6FLAB Onno Benschop

How can I talk to my friend?



*For the audio
podcast:
Foundations of
Amateur Radio
- Episode 170*

A recurring question for people who are not yet, or newly licensed is something along the lines of: I have a friend who is 400 kilometres away, can I talk to them on my hand-held 2m radio?

This particular question arrives in different forms, but generally along the lines of attempting to communicate between point A and point B at some or other distance.

The responses, on social media at least, less so on-air, are often very technical, or offer the advice to get a license, or to get a clue, or the question is ignored or dismissed. That's not helpful, or fair. The person asking the question has expressed an interest in our hobby and is looking for help.

As a basic set of answers, if you're both standing on the ground, you'll generally be able to talk about 5km using your hand-held. Stuff between you like buildings and hills will lower that distance. If you both stand on a hill, you can talk further away. As an aside, you can talk to the International Space Station with a 2m, 144 MHz hand-held because there is nothing between you and it when it's overhead, even though it's 350 km away.

If you cannot see between the two, then an intermediate radio, a repeater, can facilitate the connection. It needs to have visibility to both radios at the same time. The higher the middle point, the further the distance. For example an antenna at 350m above the ground has a so-called radio horizon of 77km and I

should point out that that's actually 15% further than actual line of sight. As long as both ends are within that radius, you should be pretty much good to go.

You can theoretically string together a whole bunch of repeaters, along a road for example, but more often than not, for distances greater than line of sight you need to invoke radio frequencies that your 2m hand-held won't do. These frequencies are generally referred to as HF and is generally anything between 3 and 30 MHz. Radio transmissions on these frequencies mainly use the ionosphere to make contact possible and you can make contacts from as close as next-door, to as far as the opposite side of the world.

The ionosphere is subject to weather in much the same way as clouds and rain. The variation in the ionosphere is driven by the sun, not by wind and humidity, and it varies throughout the day as the sun rises and sets. Communication varies depending on where the sun is and several other factors well outside this explanation. As the ionosphere changes, usable frequencies change. Something that worked one moment might not the next because the ionosphere changed.

As a licensed radio amateur you have access to many different frequencies and depending on the state of the ionosphere you can change frequency as required to alter your station to suit the conditions. You can think of it as adjusting your sail depending on the wind direction, to get from A to B.

One final point. Antennas are many and varied. They are designed for specific purpose and will react differently depending on how they're designed, built, installed and used, so the variation you're stepping into is enormous.

This hobby is nothing like dialing a phone number and making a connection, it's all about the experience and the learning. If that tickles your fancy, you're already halfway to becoming an amateur. Welcome.

~ Onno Benschop VK6FLAB
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To listen to the podcast, visit the website:

<http://podcasts.itmaze.com.au/foundations/> and scroll to the bottom for the latest episode. You can also use your podcast tool of choice and search for my callsign, VK6FLAB, or you can read the book, look for my callsign on your local Amazon store, or visit my author page: <http://amazon.com/author/owh>

If you'd like to participate in discussion about the podcast or about amateur radio, you can visit the Facebook group: <https://www.facebook.com/groups/foundations.itmaze>

Feel free to get in touch directly via email: onno@itmaze.com.au, or follow on twitter: [@vk6flab](https://twitter.com/vk6flab) (<http://twitter.com/vk6flab/>)

If you'd like to join the weekly net for new and returning amateurs, check out the details at <http://ftroop.vk6.net>, the net runs every week on Saturday, from 00:00 to 01:00 UTC on Echolink, IRLP, AllStar Link and 2m FM via various repeaters.

What is YagiCAD?

YagiCAD (<http://www.yagicad.com>) is a fully integrated analysis and design package primarily intended for VHF Yagi aerials.

With Yagicad it is possible to enter a base design from scratch or use one of a number of saved well known designs. This design can then be optimized or scaled to suit particular requirements. Once this has been done a matching unit can be estimated and overall performance characteristics can be calculated and displayed graphically. Also available are radiation patterns and a hardcopy print-out of results. Allowances in an analysis can also be made for element cross sections other than simple circular ones, as well as boom mounting techniques.

What YagiCAD will not do

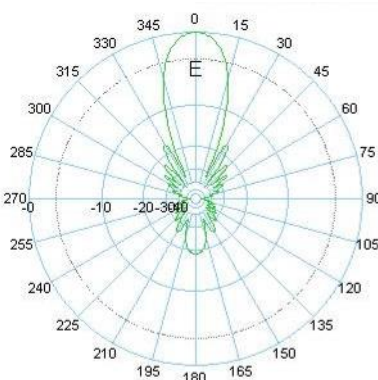
This program is based on a theoretical model of a Yagi antenna, many assumptions and simplifications have been made. The results obtained with this program must therefore be taken with some caution. In other words if you build an antenna that has been designed with YagiCAD don't expect to get it working exactly as calculated without at least some experimental iterations. I.e. YagiCAD is no substitute for a VSWR meter etc., and at least some trial and error. Anyone who doesn't at least use a variable capacitor or have some

means of varying a gamma arm length is expecting too much from this or any other antenna program

YagiCAD is Freeware

Unlike earlier versions of YagiCAD which were released under a shareware banner (not that I ever made any money out of them) this latter version 5.0 and on are presented free. I offer it to the worldwide community of antenna experimenters in part repayment for the advice and invaluable input I have received from them over the years. It is my hope that it will be useful to them and also help to introduce new people (and especially radio amateurs) to the joys of antenna experimentation. I do however retain the copyright, and if someone wanted to include this program in some book or software collection I would appreciate being at least asked first. I can be contacted at the address below. Similarly if you have any comments or feedback please feel free to email me. I can't guarantee a speedy reply but I probably will get there eventually.

~ Paul McMahon VK3DIP



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Ed Frazer VE7EF

Radio Amateurs of Canada

RAC was formed in 1993 and is governed by seven regional directors. The Director for B.C. and Yukon is Alan Munnick VA7MP of Langley who began office in early 2017. His term expires at the end of this year, but Al announced he will not seek re-election. NSARC member Keith Witney VE7KW plans to seek nomination as Director for a two year term beginning January 1, 2019.

The official magazine of RAC is "The Canadian Amateur" (TCA), published bi-monthly and is mailed to members. A searchable electronic version in colour is also available at a reduced annual fee. A free one year RAC membership and subscription to the electronic magazine is offered new amateurs such as those who graduate from the Basic program. Two other classes of memberships are also offered. Maple Leaf membership and the Legacy membership for those who include RAC in their estate planning. The Maple Leaf membership is now available in three operator levels: The Bronze membership is \$100 per year; The new Silver membership is \$500 per year; and the new Gold Level Maple Leaf membership is \$1000 per year, all plus GST. I am pleased to report that several NSARC members strongly support RAC with their Maple Leaf membership.

RAC is also a member society of the International Amateur Radio Union, (IARU) which lobbies for the protection of amateur radio spectrum at the UN's World Radio Conference. A current topic of concern is High-Power Wireless Power Transfer for electric vehicles which has a significant potential for interference to radiocommunications. Of particular pride for Canadian amateurs is that the IARU president for the past several years is Tim Ellam VE6SH, a Canadian.

The federal government agency that administers spectrum in Canada is now called "Innovation, Science and Economic Development" (ISED). Spectrum in B.C. is administered by offices in Surrey, Victoria and Kelowna. RAC officers meet with ISED officials twice annually to discuss spectrum and amateur issues through a consultative forum known as the Canadian Amateur Radio Advisory Board (CARAB). Routine amateur radio matters such as callsigns are handled by the Amateur Radio Service Centre, located in Sault Ste Marie, Ontario. The ARSC publishes a useful guide titled "Amateur Certification – Fact Sheet" which can be located by a Google search.

The Annual General Meeting of RAC was held on July 16, 2018 in Alberta during the annual Red Deer Picnic and

Hamfest. RAC President Glenn MacDonell reported on RAC's continuing slow growth in membership and finances. He stated that RAC depends greatly on volunteers for national activities.

The RAC Website includes many useful items for active amateurs, including:

- Amateur radio clubs in BC and YT; <https://wp.rac.ca/british-columbiayukon-region>. Fifty clubs are listed in B.C.
- Listing of ham fests and swap meets: <https://secure.eton.ca/rac/events/index.html> Future events can be easily listed.
- Call sign search and availability: <https://wp.rac.ca/> and go to the bottom of the home-page.
- Bandplans: For a colour chart of all Canadian amateur bands, look under "Operating" on the RAC home page, and click on "Bandplans".
- Callsigns: As of this date, ISED listed a total of 80,200 callsigns in Canada, an increase of 2% over the same time last year. In British Columbia, there are now 18,550 call-signs, an increase of almost 5%. These numbers do not indicate the actual number of hams because many callsigns are assigned to clubs, repeaters, multiple individual call-signs and Silent Keys that have not been reported. The actual number of living hams is closer to one-half the number of call-signs. With life-time granting of certificates, it is difficult to determine the number of active amateurs.

RAC operates two award programs to recognize achievements by Canadian Amateurs. In late 2017, North Shore ARC's Keith Witney VE7KW and Don Studney VE7DS of the Delta Amateur Radio Club were appointed RAC Amateurs of the Year for their work on the VE100VIMY project. This award was presented on Sept. 11 at the meeting of the ORCA DX and Contest Club at the River House Restaurant in Delta, BC.

We are grateful for the many volunteers that keep RAC running - Directors, officers and numerous committees.

~ Ed Frazer VE7EF

Courtesy of the NSARC newsletter



Learning Morse Code *After Getting My Licence*

John MacFarlane VE7AXU

It is clear to me that the use of Morse code is holding its own on the ham bands. Further, I'm meeting hams who have recently become proficient in Morse and are making QSOs on air - something that I have wanted to do for a long time.

In 2004, when I determined to get my ham licence (after thinking about it since 1961) I began learning Morse code. I took the test and passed the Morse test soon afterwards (before I got my call sign). Almost immediately the Morse code requirement was dropped and it has remained as an optional method of achieving HF privileges. I did not use CW on air and soon lost my capability to copy and send.

With encouragement from John Brodie I recently began practicing again - and am now practicing up around 6-8 words per minute. I have been using an excellent free Morse tutor created by a New Zealand ham ZL1AN which I would recommend to any ham thinking of learning Morse. The link is

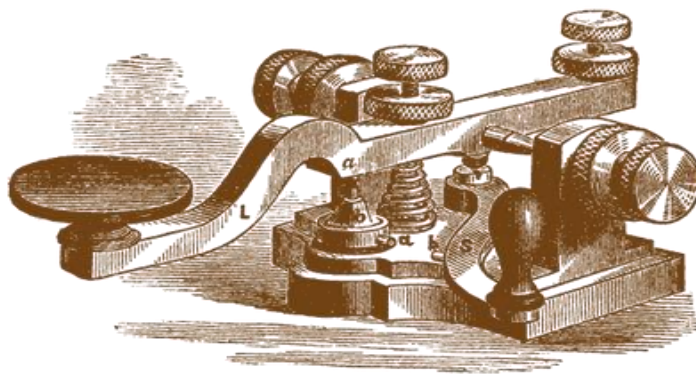
<http://www.qsl.net/zl1an/Software/tea4software.html>

Another learning tool that has been very useful is a website sponsored by AA9PW on which there are a number of options - copy text sent at a range of speeds - which I use to practice copying - and to gradually pick up my speed. The link is <http://aa9pw.com/morsecode/> This is a slick resource which has changing content every day. There is also a podcast which can be subscribed - to

download the "Quote of the Day" at a range of different speeds. This allows me to copy when I have a few free moments - and with an earphone it is very private.

Several times a week I make a Skype connection with Brett Garrett or John Brodie and we each send and receive for about 10 minutes each - just allowing the computer microphone to pick up the sounds from a keyer run by a paddle. This is tougher than working with machine sent code - as humans are not as consistent and methodical - and this really puts me to the test. They are both very patient with me - and I find my speed is picking up. Mostly my confidence is increasing - and I expect to start making local slow speed contacts on-air very soon. Maybe there will be enough interest to start a slow speed contact group?

I find that the practice is keeping my brain agile - forcing me to use brain capacity which has grown idle - and if nothing else it has slowed the effects of aging. I highly recommend learning Morse even if you never plan to use it on air - and take advantage of the free resources on the web to help you along.



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SARC CLUB EXECUTIVE 2017-2018

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John Brodie VA7XB

What are YOU Doing to Improve SARC?

As we start the Fall season, it is an appropriate time to give thoughtful consideration to how you, as a member, can make the club better, contribute to its prosperity and at the same time, give back to this great hobby of amateur radio.

It is a cliché to say that a minority of the membership of any organization always does the work for the benefit of the majority. While the Executive provides the leadership, too often it is these same Directors who volunteer to take on the extra tasks. In fact, a number of responsibilities go unfilled because no volunteers step up.

Here are a few suggestions of ways in which individual members could become more involved in the affairs of SARC and contribute in a positive way:

1. Join the newly-formed Public Service committee to focus on the duty side of amateur radio, i.e. being trained and prepared for an emergency.
2. Volunteer for the many public service events that occur during the year; this will give you practice using your radio and communicating effectively.
3. Dust off your VHF radio and check into public service and traffic nets on a regular basis.
4. Contribute technical articles or personal stories about your experiences with amateur radio for publication in the Communicator.
5. Participate in contests to polish your operating skills so that you will be ready for that emergency when it occurs.
6. Volunteer to take a specific role in Field Day by participating in planning meetings, setup and take-down.
7. Initiate a project of your own, such as designing or building a kit that others may wish to construct.
8. Offer to give a technical talk at a club meeting or make suggestions of topics that would interest you.
9. Attend breakfast meetings on Saturday mornings to get to know your fellow members and enjoy social interactions and the varied discussions of wide-ranging topics that take place.
10. If your technical skills are up to standard, offer to assist with instruction of new amateurs at the twice-annual basic ham classes.
11. Offer to mentor others who are new to the hobby, i.e. in ham parlance, be an "Elmer" to newbies.
12. Volunteer to assist with management of the repeater, nets, QSL bureau, or equipment maintenance.
13. Join the OTC committee and take on jobs that need doing, i.e. organizing, paper work, tidying up, cleaning, sorting ...
14. Volunteer to assist with the Fox Hunt, Jamboree-on-the-Air, Surrey Doors Open, surplus items auction or other club activities.

~ John VA7XB

It's October

The next Surrey Amateur Radio Club general meeting is on Wednesday, October 10th. This meeting we will be focusing on public service communications. Subject to availability, our guest presenter will be Ken Clarke VE7BC. Beside being the BC Incoming QSL Bureau manager (<https://tinyurl.com/BCQSLBureau>), Ken is also the Amateur Radio communications coordinator for the annual New Westminster Hyack Parade and the Rotary Club annual 'Gears for Ears' Bike-A-Thon, which supports cochlear implant research at UBC and St. Paul's Hospital.

Ken will relate his experiences in setting up these events and provide tips on supporting similar public service events. Please join us.



SARC hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1736 and Echolink node 496228.

On UHF we operate a repeater on 443.775MHz (+5Mhz) Tone=110.9 or IRLP Node 1737.

	SARC Net 20:00 Hrs
1st Tuesday Standby	Drew VA7DRW Dixie VA7DIX
2nd Tuesday Standby	Jinty VA7JMR Sheldon VA7XNL
3rd Tuesday Standby	Rob VE7CZV Vacant
4th Tuesday Standby	Kapila VE7KGK John VA7XB
5th Tuesday Standby	Robert VA7FMR Vacant
Want a turn at Net Control? Contact the SARC Net Manager	

Down The Log...

SARC Monthly Meetings

2nd Wed. (Sept-Jun)
1900 hr at the PREOC
Emergency Mgmt BC
14292 Green Timbers
Way, Surrey, BC

Weekly Club Breakfast

Saturday between 0800
and 1000 hrs at the
Kalmar Family Restaurant
8076 King George Blvd.
Surrey

SARC Net

Tuesday at 2000 hr local
on 147.360 MHz (+)
Tone=110.9

SEPARS Net

Tuesday at 1930 hr local
on 147.360 MHz (+)
Tone=110.9

VE7RSC Repeaters

2m: 147.360MHz+
Tone= 110.9Hz
IRLP node 1736
Echolink node 496228

1.2m: 223.960 Mhz -1.6
Tone=110.9

70cm: 443.775MHz+
Tone= 110.9Hz
IRLP node 1737



We Have A SARC Patch!

These are suitable for sewing on a jacket, cap or your jammies, so you can proudly display your support for the club.

The price is \$4 each or three for \$10 and they can be picked up at a meeting or the weekly Koffee Klatch.

Burnaby Radio Communications

Michael J. Wong VE7HMW
President/Owner

4257 Hastings Street
Burnaby, B.C. V5C 2J5
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Fax 604-298-5455

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